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ABSTRACT

The purpose of this study was to determine the extent of activity and the types of behavior engaged in by children during unstructured play time such as recess periods. A total of 369 children were observed at recess at five elementary schools (K-3). One child at a time was monitored for five minutes. Behavior was classified as active or passive. Active behavior included four categories of play: (1) vigorous; (2) moderate; (3) minimal; and (4) sedentary. Passive behavior was divided into social interaction and independent behavior. Social interaction was comprised of talking with friends and disruptive behavior. Independent behavior consisted of non-purposeful, inactive moments, solitary activities and observing others. Results suggested that the activity patterns during recess and physical education classes are similar. Children do not voluntarily engage in sufficient aerobic activity during recess, nor do physical education programs provide the appropriate activities to adequately promote fitness. Special aerobic programs of adequate duration and intensity are recommended. (JD)

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AN ANALYSIS OF UNSTRUCTURED PLAY BEHAVIOR OF CHILDREN

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The purpose of the study was to determine the extent of activity and the types of behavior engaged in by children during unstructured play time such as recess periods. The hypothesis was that children do not voluntarily engage in sufficient physical activities during recess to increase their fitness level. Specifically, children spend a majority of time in passive activites such as talking with friends.

A total of 369 children weré randomly selected for observation during recess at five elementary schools (K-3). One child at a time was chosen for observation. The observer monitored the behavior of each child selected for five minutes. Every five seconds, the behavior or behaviors that were occuring at that moment were checked. Behavior was classified into active behavior and passive behavior. Active behavior included four categories of play, (1) vigorous, (2) moderate, (3) minimal, and (4) sedentary. Passive behavior was divided into social interaction and independent behavior. Social interaction was comprised of talking with friends and disruptive behavior. Independent behavior consisted of non-purposeful, inactive moments, solitary activities, and observing others.

The data was analyzed through an analysis of variance. The following findings appear to be justified.

1. Children were engaged in some form of vigorous physical activity 21 percent of the time. When combined with moderate physical activity, children were active 41 percent of the time.

2. When combining all categories of active behavior, children were involved in play 65 percent of the time.

3. When combining the vigorous and moderate physical activity categories, boys were significantly more active than girls.

4. Of four subgroups (white boys, black boys, white girls, black girls), white girls were the least physically active, scoring highest in the minimal, sedentary activities and talking with friends.

The majority of children engaged in a relatively high percentage of physically active behavior, thus rejecting the hypothesis. Children participated in some degree of physically active behavior 59 percent of the time.

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Educators are aware that current elementary school physical education programs are inadequate to promote fitness in children. According to the National Children and Youth Fitness Study II (NCYFS II, 1987), only one third of first through fourth graders receive physical education classes daily and about 37 percent of children take physical education only one or two days a week. Since structured physical education programs are not meeting fitness objectives, how is recess contributing as a supplement to physical education? The NCYFS II stated that though children need discretionary time, schools are inappropriately using recess to substitute for physical education. The reality is that recess time per week easily exceeds physical education class time. To what extent are recess periods contributing to the fitness needs of children? What's really happening during recess?

An observation instrument has been developed at the University of Delaware. Its purpose was to determine the extent of activity and the types of behavior engaged in by children during unstructured play time such as recess.

The Instrument

I. ACTIVE BEHAVIOR

- A. Vigorous activity
- B. Moderate activity
- C. Minimal activity

II. PASSIVE BEHAVIOR

- A. Social Interaction
  - 1. Conversing with others
  - 2. Disruptive behavior
  - 3. Sedentary play

B. Independent Behavior

1. Inactive or solitary

2. Observing others

C. Waiting

Scoring Procedure

One child was randomly selected at a time for observation. The observer monitored the behavior of each child selected for five minutes. Every five seconds, the behavior that was occurring at that moment was checked. The specific behaviors were measured by counting the number of times each occurred. Each behavioral category was calculated into percentages.

Description of Categories

The categories included in the instrument represented most behaviors observed in a recess period. The following describes the intent of each category.

ACTIVE BEHAVIOR

Vigorous activity pertains to continuous activities that are aerobic in nature - running, rope jumping, climbing, dancing; to strength activities - lifting, hanging; and to muscular endurance activities - sit-ups, push-ups or other sustained efforts.

Moderate activity includes activities such as throwing, catching, shooting a basketball, volleying, kicking, rolling a ball; any serial skills that do not enhance cardiovascular endurance.

Minimal activity includes less active movements such as walking, balance and flexibility activities, fine manipulative skills, rope turning; using passive playground equipment - swings, see-saws.

* Questionable activities were tallied in the moderate category.

PASSIVE BEHAVIOR

A. Social Interaction

Conversing with others consists of normal conversation with one or more friends while being non-disruptive nor involved in any organized activity.

Disruptive behavior can be verbal - abusive talk, arguments, name-calling; and physical-aggressive actions such as pushing others, throwing objects at others, fighting.

Sedentary play pertains to the use of sedentary toys with others such as board games, blocks or puzzles; play while sitting or lying down.

B. Independent Behavior

Inactive or solitary refers to sitting or standing with no apparent purposeful activity; being excluded from the activity of others; other behaviors done alone such as reading or eating.

Observing others consists of spectator behavior; watching others in play or conversation.

C. Waiting

Waiting must occur within the context of an organized situation such as waiting for a turn in a game or waiting to use playground equipment.

Subjects and Setting

A total of 369 children were randomly selected for observation during recess periods at five elementary schools (K-3). Three public schools, one private school, and one parochial school were selected. The average daily recess time was 28 minutes with a range of 15 minutes to 35 minutes. All recess periods were held outdoors.

Table 1 shows the number of children by sex and race who were observed.

Table 1

Number of Children by Sex and Race (N = 369)

	N		N
Male	201	White Male	105
Female	168	Black Male	96
White	195	White Female	90
Black	174	Black Female	78

Observer Training

Twelve undergraduate students served as observers. The observers practiced using the instrument for several sessions by tallying the behavior of the same child. Practice trials continued until at least an 85 percent agreement was reached with other observers. During the actual collection of data a mean interrater reliability correlation of .91 was obtained.

Results

Table 2 shows the average scores by percentages in each category for males and females and white and black children.

Table 2

Average Scores (in percentages)

Active Behavior	Total	Male	Female	White	Black
Vigorous	21.62	22.21	20.91	22.68	20.68
Moderate	19.93	22.47	16.89	18.95	21.24
Minimal	17.35	16.88	17.91	17.55	16.68
Passive Behavior					
Social Interaction					
Conversing with others	14.97	13.34	16.92	16.83	12.64
Disruptive	2.15	2.45	1.79	1.15	3.33
Sedentary play	6.46	5.92	7.11	7.54	5.21
Independent					
Inactive, solitary	3.60	2.64	4.74	2.77	4.62
Observing others	10.14	9.77	10.58	8.49	12.16
Waiting	3.77	4.30	3.14	4.02	3.42

When combining all categories of active behavior, children were involved in some degree of physical play about 59 percent of the time. However, children were engaged in vigorous physical activity only 21 percent of the time. Since the average daily recess time was 28 minutes, then approximately six minutes were devoted to activities promoting fitness.

Regarding gender differences, when combining the vigorous and moderate physical activity categories, boys were more active than girls, 45 percent vs. 38 percent. Girls demonstrated more social interaction than boys. When combining conversing with others and sedentary play with others, the percent for girls was 24 compared to 19 percent for boys.

Racial differences were minimal. The activity levels of white and black children were nearly identical. Black children did exhibit more solitary, independent behavior and the white children engaged in more social interaction.

Table 3 shows the average scores of the four subgroups in each category.

Table 3

Average Scores for Subgroups (in percentages)

	White Male	Black Male	White Female	Black Female
Active Behavior				
Vigorous	23.86	20.22	20.65	21.23
Moderate	21.85	23.18	15.16	18.98
Minimal	14.10	18.71	21.41	14.29
Passive Behavior				
Social Interaction				
Conversing with others	14.54	12.01	19.35	13.38
Disruptive	1.31	3.79	0.96	2.80
Sedentary play	5.96	5.87	9.32	4.44
Independent				
Inactive, solitary	3.02	2.18	2.47	7.48
Observing others	9.50	10.08	7.25	14.60
Waiting	4.51	3.95	3.43	2.80

Of the four subgroups, white girls were the least physically active when considering moderate to vigorous activity, while scoring the highest in sedentary play, minimal activity, and conversing with friends. Black girls spent the most time in solitary behavior and observing others.

Discussion

Despite the low fitness levels demonstrated in recess activities, are recess periods any worse than the contributions of physical education programs in meeting the fitness needs of children? The writer has utilized a Student Observation Scale (Kraft, 1980) for the past seven years. This instrument provides quantitative information about types of movement behavior and passive behavior of individual children in physical education classes. The instrument has been used in practicum situations and by physical education specialists in school settings. Results indicate that children rarely participate in moderate to vigorous activity for more than 50 percent of a class period. The frequency of aerobic activities averages approximately 15 percent and are usually observed during the warm-up phase of a lesson. Vigorous, continuous activities are grossly neglected due to the amount of management time, instruction time, and waiting for a turn. And the majority of class activities are not aerobic, focusing rather on sport skills and games (NCYFS II, 1987). Research by Parcel et. al. (1987) suggested that the average elementary school child spends only two to three minutes in moderate to vigorous exercise in a physical education class.

How is recess contributing as a supplement to physical education? Since recess is a daily experience, recess provides more total activity time per week than physical education programs. A study by Hovell et. al. (1978) stated that elementary school students engaged in physical activity for about 60 percent of their recess time. The present study reported a 59 percent activity level.

Conclusion

The data presented in this article suggests that the activity patterns during recess and physical education classes are similar. Children do not voluntarily engage in sufficient aerobic activity during recess, nor do

physical education programs provide the appropriate activities to adequately promote fitness. Though physical education should certainly be a daily program for all children, the real problem lies in the type of activities that occupy the greatest amount of class time. Physical educators need to focus upon a wide variety of vigorous activities as the predominant composition of a class. Special aerobic programs of adequate duration and intensity need to be provided. Perhaps the habit of vigorous physical education classes would carry over to recess behavior and eventually establish lifelong patterns of physical fitness.

The key ingredient to a carry over effect from a physical education class to recess is the enthusiasm and motivation provided by the teacher. Children will initiate activities during recess that were fun and challenging in class. These activities must be enjoyable enough for students to be self-starting without the presence of a teacher. Continuous activities such as soccer, tag games, rope jumping, four square, rollerskating, bounding boards, scooter maneuvers, and obstacle course runs are appropriate. The physical educator may assign "homework" to encourage students to prepare for an upcoming fitness test. The test items, sit-ups, pull-ups or running may be practiced at recess. The physical educator may provide the classroom teacher with activities to implement during a portion of recess. However, the recess period should provide children with some nonobligatory time. Vigorous group games may be encouraged during recess. For example, "clean up your backyard" could provide constant activity if adequate equipment is provided.

Most children will not develop physical fitness on their own. Activity habits should be established at an early age. The challenge to provide opportunity, to motivate, and to encourage children to engage in vigorous activities during their leisure time remains an essential mission for physical educators.

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